武汉大学国际软件学院

实验报告

课程名称 人机交互

专业年级 2014

姓　　名

学　　号

协 作 者 无

实验学期 2015-2016 学年 下 学期

课堂时数 课外时数

填写时间 2016 年 5 月 22 日

实验概述

【实验项目名称】：Implement a calculator with Visual Basic

【实验目的】： Get familiar with basic programming skill of Visual Basic

【实验环境】（使用的软件）：Microsoft Visual Studio 15.0

【参考资料】：Teaching videos

实验内容

【实验方案设计】：

1. Using controls, such as buttons and textbox to design the fundamental user interface. Click the numbers to implement events handling when the button of number is clicked. CE is used to clear the screen
2. Double click the clear button to implement event that will be triggered when this button is clicked. Using function Clear() of the textbox to clear all the information in the textbox.
3. Click + - * / to do the operation and = will return the final result.
4. Click sin cos tan to perform the triangle function.
5. Click Abs to return the non-negative value and x^2 to get the square product of x and sqrt to get square root.
6. Click PI to get constant pi as 3.14159265358979 or E to get constant e as 2.71828182845905.
7. Click Exp to get e^x
8. Click n! to get 1*2*3*4*.....*n

```
Public Class Form1
    Dim result As Double '储存结果
    Dim argu1 As Double = 0
    Dim argu2 As Double = 0 '运算数
    Dim op As String = "=" '运算符
    '0-9
    Private Sub Button1_Click(sender As Object, e As EventArgs) Handles Button1.Click
        Dim b As Button
        b = sender
        If TextBox1.Text = "0" Then
            TextBox1.Text = b.Text
        Else
            TextBox1.Text += b.Text
        End If
    End Sub
```

```
    '.
    Private Sub Button11_Click(sender As Object, e As EventArgs) Handles Button11.Click
        Dim b As Button
        b = sender
        '处理异常
        Dim st As String = Str(TextBox1.Text)
        Dim dot As Integer = st.IndexOf(".")
        If dot = -1 Then
            TextBox1.Text += b.Text
        Else
            MsgBox("There is an existent . at " & st.IndexOf("."))
        End If
    End Sub
    'CE
    Private Sub Button17_Click(sender As Object, e As EventArgs) Handles Button17.Click
        TextBox1.Text = "0"
        result = 0
        argu1 = 0
        argu2 = 0
        op = "="
    End Sub
```

```
    '+ - * / are the same
    Private Sub Button16_Click(sender As Object, e As EventArgs) Handles Button16.Click
        Dim b As Button
        b = sender
        Select Case op'运行一步算一步
            Case "+"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 + argu2
                TextBox1.Text = Str(argu1)
            Case "-"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 - argu2
                TextBox1.Text = Str(argu1)
            Case "*"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 * argu2
                TextBox1.Text = Str(argu1)
            Case "/"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 / argu2
                TextBox1.Text = Str(argu1)
            Case "=" : argu1 = Val(TextBox1.Text)
        End Select
        op = "+"
        TextBox1.Text = "0"
```

```
    '=
    Private Sub Button12_Click(sender As Object, e As EventArgs) Handles Button12.Click
        Dim b As Button
        b = sender
        Select Case op'运行一步算一步
            Case "+"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 + argu2
            Case "-"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 - argu2
            Case "*"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 * argu2
            Case "/"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 / argu2
            Case "="
                argu1 = Val(TextBox1.Text)
        End Select
        result = argu1
        TextBox1.Text = Str(result)
        op = "="
    End Sub
```

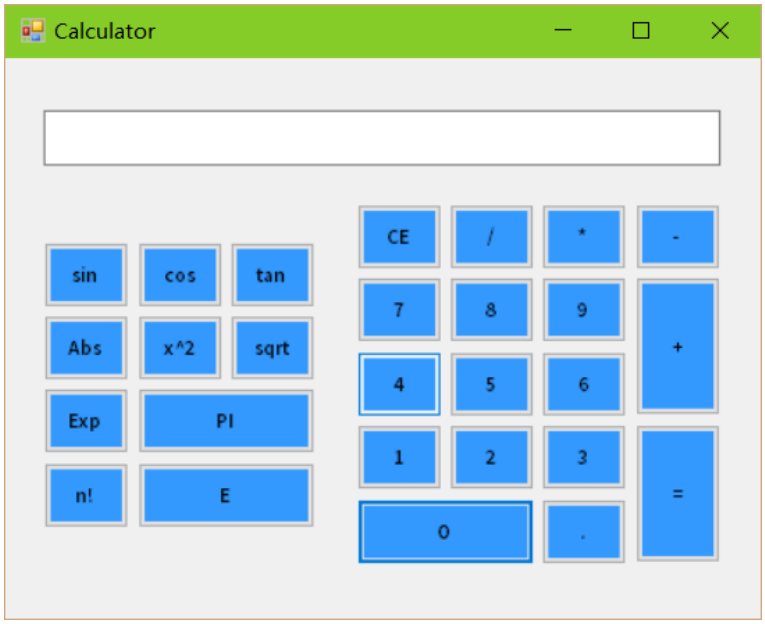
```
    'sin  cos tan 的实现
    Private Sub Button19_Click(sender As Object, e As EventArgs) Handles Button19.Click
        Dim b As Button
        b = sender
        Select Case op'运行一步算一步
            Case "+"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 + argu2
            Case "-"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 - argu2
            Case "*"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 * argu2
            Case "/"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 / argu2
            Case "=" : argu1 = Val(TextBox1.Text)
        End Select
        argu1 = Math.Sin(argu1)
        TextBox1.Text = Str(argu1)
        op = "="
    End Sub
```

```
    '阶乘
    Private Sub Button27_Click(sender As Object, e As EventArgs) Handles Button27.Click
        Dim b As Button
        Dim i, x, n As Double
        b = sender
        Select Case op'运行一步算一步
            Case "+"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 + argu2
            Case "-"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 - argu2
            Case "*"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 * argu2
            Case "/"
                argu2 = Val(TextBox1.Text)
                argu1 = argu1 / argu2
            Case "=" : argu1 = Val(TextBox1.Text)
        End Select
        n = argu1
        x = 1
        For i = 1 To n
            x = x * i
        Next
```

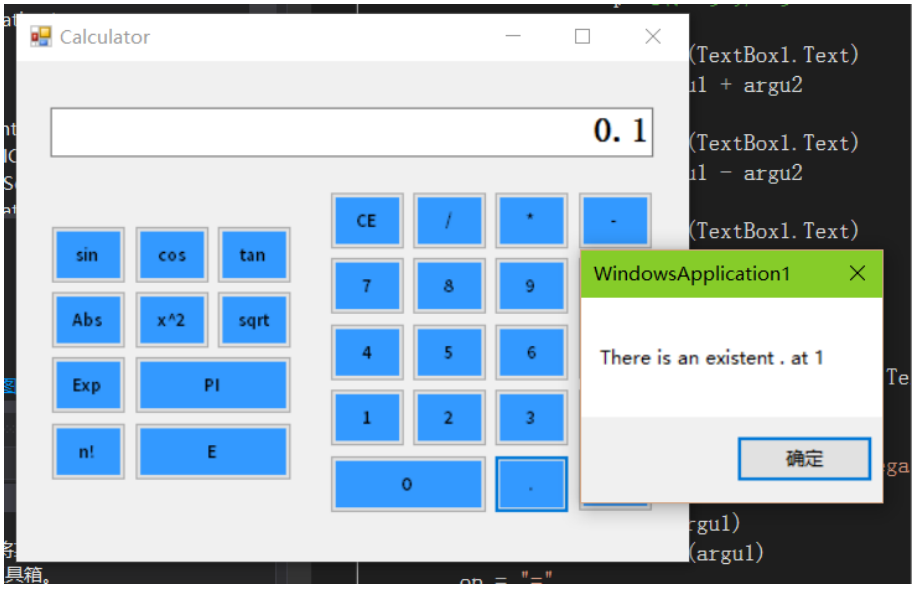
```
    '圆周率PI
    Private Sub Button26_Click(sender As Object, e As EventArgs) Handles Button26.Click
        TextBox1.Text = Str(Math.PI)
    End Sub
    '自然对数e
    Private Sub Button28_Click(sender As Object, e As EventArgs) Handles Button28.Click
        TextBox1.Text = Str(Math.E)
    End Sub
```

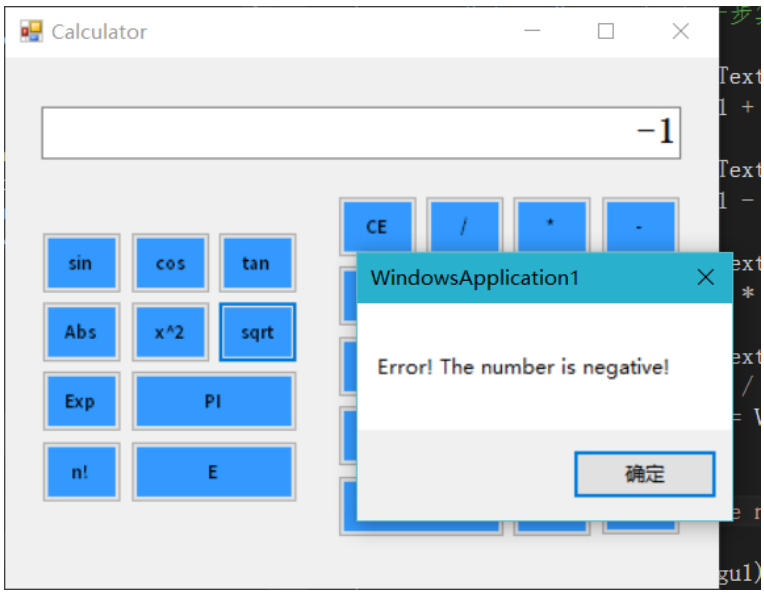
【结论】（结果）：

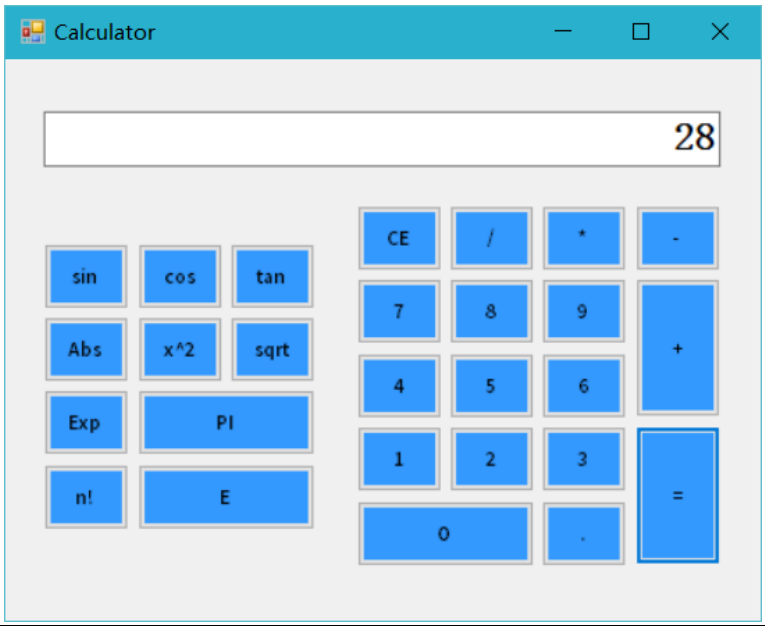
Interface:

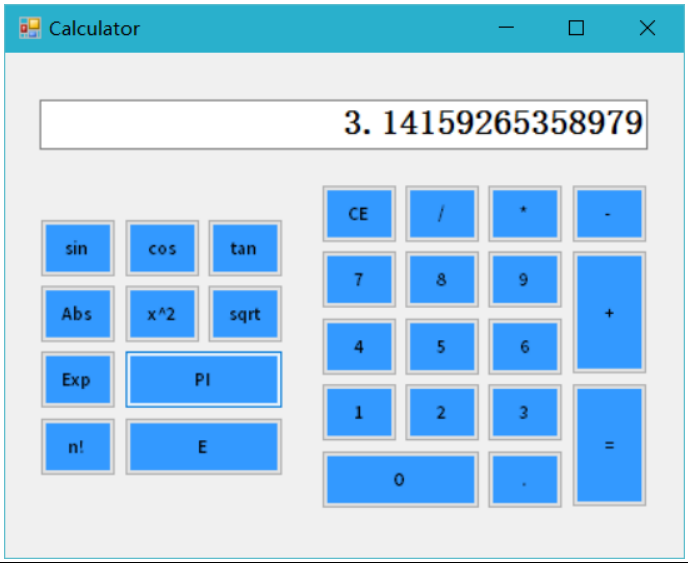


Exception Handling:

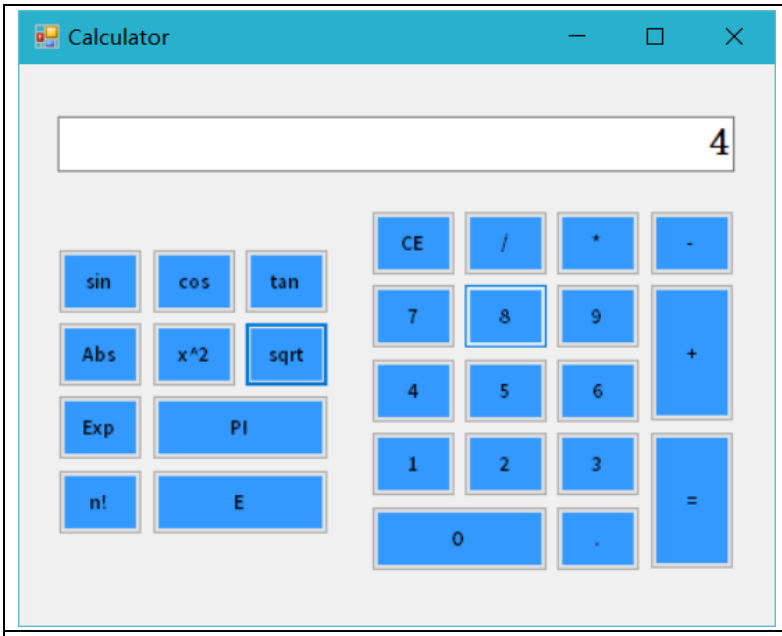



Calculator
-1
CE
/
*
-
sin
cos
tan
Abs
x^2
sqrt
Exp
PI
n!
E
WindowsApplication1
Error! The number is negative!
确定


Calculator
28
CE
/
*
-
sin
cos
tan
7
8
9
+
Abs
x^2
sqrt
4
5
6
Exp
PI
1
2
3
=
n!
E
0
.


Calculator
3.14159265358979
CE
/
*
-
sin
cos
tan
7
8
9
+
Abs
x^2
sqrt
4
5
6
Exp
PI
1
2
3
=
n!
E
0
.


Calculator
2. 71828182845905
sin
cos
tan
Abs
x^2
sqrt
Exp
PI
n!
E
CE
/
*
-
7
8
9
+
4
5
6
1
2
3
=
0
.
Calculator
3. 23108510433268E-15
Calculator
24
Calculator
16



【小结】：

Visual Basic is quite different from other object-oriented languages we learnt, it can be rather confusing at first. While I have learnt it during my first year of the junior high school and I took part in a competition at that time. I have already done this work when I was a student in high school, but after a long time, I found that I have forgotten most of the VB's grammar. So it is also a tough work to re-involve in it.

指导教师评语及成绩

【评语】：

成绩：　　指导教师签名：

批阅日期：

附件：

实验报告说明

1．实验项目名称：要用最简练的语言反映实验的内容。要求与实验指导书中相一致。

2．实验目的：目的要明确，要抓住重点，符合实验任务书中的要求。

3．实验环境：实验用的软硬件环境（配置）。

4．实验方案设计（思路、步骤和方法等）：这是实验报告极其重要的内容。包括概要设计、详细设计和核心算法说明及分析，系统开发工具等。应同时提交程序或设计电子版。

对于**设计型和综合型实验**，在上述内容基础上还应该画出流程图、设计思路和设计方法，再配以相应的文字说明。

对于**创新型实验**，还应注明其创新点、特色。

5．结论（结果）：即根据实验过程中所见到的现象和测得的数据，做出结论（可以将部分测试结果进行截屏）。

6．小结：对本次实验的心得体会，所遇到的问题及解决方法，其他思考和建议。

7．指导教师评语及成绩：指导教师依据学生的实际报告内容，用简练语言给出本次实验报告的评价和价值。